

CLAIMS

Sub 1/ A computer readable medium encoded with a program for execution on a computer system that includes a plurality of host processors coupled to a storage system over a network, the program, when executed on the computer system, performing a method

5 comprising a step of:

displaying a first representation of each of the plurality of host processors that is logged into the storage system.

Sub 2/ 2. The computer readable medium of claim 1, wherein the method further comprises a step of:

displaying a second representation of a respective path through the network over which each of the plurality of host processors is logged into the storage system.

3. The computer readable medium of claim 2, wherein the step of displaying the second representation of the respective path includes a step of:

15 displaying a representation of a network adapter on a respective host processor through which the respective host processor is logged into the storage system.

4. The computer readable medium of claim 3, wherein the step of displaying the second representation of the respective path further includes a step of:

20 displaying a representation of a network adapter on the storage system through which the respective host processor is logged into the storage system.

5. The computer readable medium of claim 2, wherein the step of displaying the second representation of the respective path includes a step of:

25 displaying a representation of a network adapter on the storage system through which a respective host processor is logged into the storage system.

6. The computer readable medium of claim 1, wherein the step of displaying the first representation includes a step of displaying a first graphical representation of each of the plurality of host processors that is logged into the storage system.

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7. The computer readable medium of claim 6, wherein the program is executed on a first host processor of the plurality of processors, the method further comprising a step of:
displaying in the first graphical representation a logical identifier that is associated with the first host processor.

8. The computer readable medium of claim 6, further comprising a step of:
displaying in the first graphical representation a plurality of logical identifiers that are associated with the plurality of host processors, each logical identifier being associated with a respective one of the plurality of host processors that is logged into the storage system.

9. The computer readable medium of claim 6, further comprising a step of:
displaying a second graphical representation of a respective path through the network over which each of the plurality of host processors is logged into the storage system.

10. The computer readable medium of claim 9, wherein the step of displaying the second graphical representation of the respective path includes a step of displaying different types of network devices in the respective path using different graphical representations.

11. The computer readable medium of claim 9, wherein the step of displaying the second graphical representation of the respective path includes a step of selectively displaying the second graphical representation of the respective path at varying levels of detail.

12. The computer readable medium of claim 9, wherein the step of displaying the second graphical representation of the respective path includes a step of:

displaying a graphical representation of a network adapter on a respective host processor through which the respective host processor is logged into the storage system.

13. The computer readable medium of claim 12, wherein the step of displaying the second graphical representation of the respective path further includes a step of:

displaying a graphical representation of a network adapter on the storage system through which the respective host processor is logged into the storage system.

14. The computer readable medium of claim 9, wherein the step of displaying the second graphical representation of the respective path includes a step of:

displaying a graphical representation of a network adapter on the storage system through which a respective host processor is logged into the storage system.

15. The computer readable medium of claim 6, wherein the method further comprises a step of:

displaying a second graphical representation of the storage system in which each of the plurality of host processors is logged into.

16. The computer readable medium of claim 15, wherein the step of displaying the second graphical representation of the storage system includes a step of:

displaying in the second graphical representation of the storage system a graphical representation of a network adapter on the storage system in which at least one of the plurality of host processors is logged into.

17. The computer readable medium of claim 15, wherein the step of displaying the second graphical representation of the storage system includes a step of:

displaying in the second graphical representation of the storage system a graphical representation of each network adapter on the storage system in which at least one of the plurality of host processors is logged into.

18. The computer readable medium of claim 15, wherein the step of displaying the second graphical representation of the storage system includes a step of:

displaying in the second graphical representation of the storage system a graphical representation of each network adapter on the storage system.

19. The computer readable medium of claim 15, wherein the step of displaying the second graphical representation of the storage system includes a step of:

displaying in the second graphical representation of the storage system a graphical representation of each network adapter port on the storage system.

20. The computer readable medium of claim 15, wherein the method further comprises a step of:

displaying a third graphical representation of at least one storage volume on the storage system.

21. The computer readable medium of claim 15, wherein the method further comprises a step of:

displaying a third graphical representation of each storage volume on the storage system.

22. The computer readable medium of claim 21, wherein the method further comprises a step of:
requesting the storage system to identify each storage volume on the storage system.

23. The computer readable medium of claim 21, further comprising a step of:
graphically indicating in the third graphical representation, for each one of the storage volumes on the storage system, whether the one of the storage volumes is shared by more than one host processor.

24. The computer readable medium of claim 21, further comprising a step of:
graphically indicating in the third graphical representation, for each one of the storage volumes on the storage system, whether the one of the storage volumes is a mirrored storage volume.

25. The computer readable medium of claim 21, further comprising a step of:
displaying, for each one of the storage volumes on the storage system, which of the plurality of host processors can access the one of the storage volumes.

26. The computer readable medium of claim 20, further comprising a step of:

modifying access privileges to the at least one storage volume from at least one of the plurality of host processors responsive to a graphical manipulation of a representation corresponding to the at least one of the plurality of host processors.

5 27. The computer readable medium of claim 20, further comprising a step of:
 modifying access privileges to the at least one storage volume from at least one of the
 plurality of host processors responsive to a graphical manipulation of a graphical
 representation corresponding to the at least one storage volume.

10 28. The computer readable medium of claim 1, wherein the method further
 comprises step of:
 requesting the storage system to identify access privileges to at least one storage
 volume on the storage system; and
 displaying a second representation of the access privileges to the at least one storage
15 volume.

20 29. The computer readable medium of claim 28, further comprising a step of:
 requesting the storage system to modify the access privileges to the at least one storage
 volume responsive to a command from a user.

25 30. The computer readable medium of claim 1, wherein the program is executed on
 a first host processor of the plurality of processors, the method further comprising a step of:
 requesting the storage system to identify to the first host processor a pathname used by
 the first host processor to log into the storage system.

30 31. The computer readable medium of claim 1, wherein the program is executed on
 a first host processor of the plurality of processors, the method further comprising a step of:
 requesting the storage system to identify to the first host processor which of the
 plurality of host processors are logged into the storage system.

 32. The computer readable medium of claim 1, wherein the program is executed on
 a first host processor of the plurality of processors, the method further comprising a step of:

requesting the storage system to identify to the first host processor a network adapter on the storage system that each respective host processor used to log into the storage system.

33. The computer readable medium of claim 32, wherein the program is executed on a first host processor of the plurality of processors, the method further comprising a step of:

requesting the storage system to identify to the first host processor a network adapter on each respective host processor that the respective host processor used to log into the storage system.

34. The computer readable medium of claim 1, wherein the program is executed on a first host processor of the plurality of processors, the method further comprising a step of:

requesting the storage system to identify to the first host processor each network adapter on the storage system that each respective host processor used to log into the storage system.

35. The computer readable medium of claim 1, wherein the program is executed on a first host processor of the plurality of processors, the method further comprising a step of:

requesting the storage system to identify to the first host processor a network adapter on each respective host processor that the respective host processor used to log into the storage system.

36. The computer readable medium of claim 1, wherein the program is executed on a first host processor of the plurality of processors, the method further comprising a step of:

displaying a second representation of another network device, other than one of the plurality of host processors, that is coupled to the storage system over the network and is logged into the storage system.

37. In a computer system having a plurality of host processors coupled to a storage system over a network, a method comprising a step of:

displaying, on a display in the computer system, a first representation of each of the plurality of host processors that is logged into the storage system over the network.

38. The method of claim 37, further comprising a step of:

displaying, on the display in the computer system, a second representation of a respective path through the network over which each of the plurality of host processors is logged into the storage system.

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39. The method of claim 38, wherein the step of displaying the second representation of the respective path includes a step of:

displaying a representation of a network adapter on a respective host processor through which the respective host processor is logged into the storage system.

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40. The method of claim 39, wherein the step of displaying the second representation of the respective path further includes a step of:

displaying a representation of a network adapter on the storage system through which the respective host processor is logged into the storage system.

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41. The method of claim 38 wherein the step of displaying the second representation of the respective path includes a step of:

displaying a representation of a network adapter on the storage system through which a respective host processor is logged into the storage system.

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42. The method of claim 37, wherein the step of displaying the first representation includes a step of displaying a first graphical representation of each of the plurality of host processors that is logged into the storage system.

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43. The method of claim 42, further comprising a step of:

displaying, in the first graphical representation, a plurality of logical identifiers that are associated with the plurality of host processors, each logical identifier being associated with a respective one of the plurality of host processors that is logged into the storage system.

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44. The method of claim 42, further comprising a step of:

displaying, on the display in the computer system, a second graphical representation of a respective path through the network over which each of the plurality of host processors is logged into the storage system.

5 45. The method of claim 44, wherein the step of displaying the second graphical representation of the respective path includes a step of displaying different types of network devices in the respective path using different graphical representations.

10 46. The method of claim 44, wherein the step of displaying the second graphical representation of the respective path includes a step of selectively displaying the graphical representation of the respective path at varying levels of detail.

15 47. The method of claim 44, wherein the step of displaying the second graphical representation of the respective path includes a step of:

displaying a graphical representation of a network adapter on a respective host processor through which the respective host processor is logged into the storage system.

20 48. The method of claim 47, wherein the step of displaying the second graphical representation of the respective path further includes a step of:

displaying a graphical representation of a network adapter on the storage system through which the respective host processor is logged into the storage system.

25 49. The method of claim 44, wherein the step of displaying the second graphical representation of the respective path includes a step of:

displaying a graphical representation of a network adapter on the storage system through which a respective host processor is logged into the storage system.

30 50. The method of claim 42, further comprising a step of:

displaying, on the display in the computer system, a second graphical representation of the storage system in which each of the plurality of host processors is logged into.

51. The method of claim 50, wherein the step of displaying the second graphical representation of the storage system includes a step of:

displaying in the second graphical representation of the storage system a graphical representation of each network adapter on the storage system in which at least one of the plurality of host processors is logged into.

52. The method of claim 50, wherein the step of displaying the second graphical representation of the storage system includes a step of:

displaying in the second graphical representation of the storage system a graphical representation of each network adapter on the storage system.

53. The method of claim 50, further comprising a step of:

displaying, on the display in the computer system, a third graphical representation of at least one storage volume on the storage system.

54. The method of claim 50, further comprising a step of:

displaying, on the display in the computer system, a third graphical representation of each storage volume on the storage system.

55. The method of claim 54, further comprising a step of:

graphically indicating in the third graphical representation, for each one of the storage volumes on the storage system, whether the one of the storage volumes is shared by more than one host processor.

56. The method of claim 54, further comprising a step of:

graphically indicating in the third graphical representation, for each one of the storage volumes on the storage system, whether the one of the storage volumes is a mirrored storage volume.

57. The method of claim 54, further comprising a step of:

displaying on the display in the computer system, for each one of the storage volumes on the storage system, which of the plurality of host processors can access the one of the storage volumes.

5 58. The method of claim 53, further comprising a step of:
modifying access privileges to the at least one storage volume from at least one of the plurality of host processors responsive to a graphical manipulation of a graphical representation corresponding to the at least one of the plurality of host processors on the display in the computer system.

10 59. The method of claim 53, further comprising a step of:
modifying access privileges to the at least one storage volume from at least one of the plurality of host processors responsive to a graphical manipulation of a graphical representation corresponding to the at least one storage volume on the display in the computer system.

15 60. The method of claim 37, further comprising a step of:
requesting the storage system to identify access privileges to at least one storage volume on the storage system; and
20 displaying, on the display in the computer system, a second representation of the access privileges to the at least one storage volume.

25 61. The method of claim 60, further comprising a step of:
requesting the storage system to modify the access privileges to the at least one storage volume responsive to a command from a user.

30 62. A computer readable medium encoded with a program that, when executed on a computer system including a plurality of host processors that are coupled to a storage system over a network, performs a method comprising steps of:

displaying a graphical representation of a portion of data that is stored on the storage system;
displaying access privileges to the portion of data stored on the storage system; and

modifying the access privileges to the portion of data by one of the plurality of host processors in response to a graphical selection of the graphical representation of the portion of data.

5 63. The computer readable medium of claim 62, wherein the method further comprises a step of:

displaying a graphical representation of the one of the plurality of host processors;
wherein the step of modifying includes a step of modifying the access privileges to the

10 portion of data by the one of the plurality of host processors in response to the graphical selection of the graphical representation of the portion of data and a graphical selection of the graphical representation of the one of the plurality of host processors.

15 64. The computer readable medium of claim 63, wherein the method further comprises a step of:

displaying in the graphical representation of the one of the plurality of host processors a graphical representation of a network adapter on the one of the plurality of host processors in response to a graphical selection of the graphical representation of the one of the plurality of host processors.

20 65. The computer readable medium of claim 64, wherein the step of modifying includes a step of:

modifying the access privileges to the portion of data from the network adapter on the one of the plurality of host processors in response to the graphical selection of the graphical representation of the portion of data, the graphical selection of the graphical representation of the one of the plurality of host processors, and a graphical selection of the graphical representation of the network adapter.

25 66. The computer readable medium of claim 62, further comprising a step of:
30 displaying a graphical representation of the storage system.

67. The computer readable medium of claim 66, further comprising a step of:

displaying in the graphical representation of the storage system a graphical representation of a network adapter on the storage system in response to a graphical selection of the graphical representation of the storage system.

5 68. A method of managing access to data stored on a storage system from a plurality of host processors that are coupled to the storage system over a network, the method comprising steps of:

displaying a graphical representation of a portion of the data stored on the storage system;

10 displaying access privileges to the portion of the data; and

modifying the access privileges to the portion of the data by one of the plurality of host processors in response to a graphical selection of the graphical representation of the portion of the data.

15 69. The method of claim 68, further comprising a step of:

displaying a graphical representation of the one of the plurality of host processors; and

wherein the step of modifying includes a step of modifying the access privileges to the portion of the data by the one of the plurality of host processors in response to the graphical selection of the graphical representation of the portion of the data and a graphical selection of the graphical representation of the one of the plurality of host processors.

20 70. The method of claim 69, further comprising a step of:

displaying in the graphical representation of the one of the plurality of host processors a graphical representation of a network adapter on the one of the plurality of host processors in response to a graphical selection of the graphical representation of the one of the plurality of host processors.

25 71. The method of claim 70, wherein the step of modifying includes a step of:

modifying the access privileges to the portion of the data from the network adapter on the one of the plurality of host processors in response to the graphical selection of the graphical representation of the portion of the data, the graphical selection of the graphical

representation of the one of the plurality of host processors, and a graphical selection of the graphical representation of the network adapter.

72. The method of claim 68, further comprising a step of:
displaying a graphical representation of the storage system;

73. The method of claim 72, further comprising a step of:
displaying in the graphical representation of the storage system a graphical
representation of a network adapter on the storage system in response to a graphical selection
of the graphical representation of the storage system.

74. A computer readable medium encoded with a program that, when executed on
a computer system including a plurality of host processors that are coupled to a storage system
over a network, performs a method comprising steps of:

displaying a graphical representation of one of the plurality of host processors;
displaying access privileges to a portion of data stored on the storage system; and
modifying the access privileges to the portion of data by the one of the plurality of
host processors in response to a graphical selection of the graphical representation of the one
of the plurality of host processors.

75. The computer readable medium of claim 74, wherein the method further
comprises a step of:

displaying a graphical representation of the portion of data stored on the storage
system; and

wherein the step of modifying includes a step of modifying the access privileges to the
portion of data by the one of the plurality of host processors in response to the graphical
selection of the graphical representation of the one of the plurality of host processors and a
graphical selection of the graphical representation of the portion of data.

76. The computer readable medium of claim 75, wherein the method further
comprises a step of:

displaying in the graphical representation of the one of the plurality of host processors a graphical representation of a network adapter on the one of the plurality of host processors in response to a graphical selection of the graphical representation of the one of the plurality of host processors.

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77. The computer readable medium of claim 76, wherein the step of modifying includes a step of:

modifying the access privileges to the portion of data from the network adapter on the one of the plurality of host processors in response to the graphical selection of the graphical representation of the one of the plurality of host processors, the graphical selection of the graphical representation of the portion of data, and a graphical selection of the graphical representation of the network adapter.

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78. The computer readable medium of claim 74, further comprising a step of: displaying a graphical representation of the storage system.

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79. The computer readable medium of claim 78, further comprising a step of: displaying in the graphical representation of the storage system a graphical representation of a network adapter on the storage system in response to a graphical selection of the graphical representation of the storage system.

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80. A method of managing access to data stored on a storage system from a plurality of host processors that are coupled to the storage system over a network, the method comprising steps of:

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displaying a graphical representation of one of the plurality of host processors; displaying access privileges to a portion of the data stored on the storage system; and modifying the access privileges to the portion of the data by the one of the plurality of host processors in response to a graphical selection of the graphical representation of the one of the plurality of host processors.

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81. The method of claim 80, further comprising a step of:

displaying a graphical representation of the portion of the data stored on the storage system; and

wherein the step of modifying includes a step of modifying the access privileges to the portion of the data by the one of the plurality of host processors in response to the graphical selection of the graphical representation of the one of the plurality of host processors and a graphical selection of the graphical representation of the portion of the data.

82. The method of claim 81, further comprising a step of:

displaying in the graphical representation of the one of the plurality of host processors a graphical representation of a network adapter on the one of the plurality of host processors in response to a graphical selection of the graphical representation of the one of the plurality of host processors.

83. The method of claim 82, wherein the step of modifying includes a step of:

modifying the access privileges to the portion of the data from the network adapter on the one of the plurality of host processors in response to the graphical selection of the graphical representation of the one of the plurality of host processors, the graphical selection of the graphical representation of the portion of the data, and a graphical selection of the graphical representation of the network adapter.

84. The method of claim 80, further comprising a step of:

displaying a graphical representation of the storage system.

85. The method of claim 84, further comprising a step of:

displaying in the graphical representation of the storage system a graphical representation of a network adapter on the storage system in response to a graphical selection of the graphical representation of the storage system.